

MINNEHAHA COUNTY ROAD SAFETY AUDIT REVIEWS May 22, 2002

Audit Team: Cliff Reuer, Traffic & Safety Engineer, SDDOT
Ted Eggebraaten, Brookings County Highway Superintendent,
Ken Skorseth, Field Services Manager, SDLTAP
Roland Stanger, Traffic/Safety Engineer, FHWA

County Road 140 from about 0.2 miles west of the junction with County 115 to the end of route (near junction County 121):

This roadway was classified for the purposes of the RSA as a Rural Major High-speed and has a paved surface. The roadway has a posted speed limit of 55 mph?. For the purposes of the audit the location information is referenced from the east end of the job (mp 0.0) increasing by miles heading west. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- Replace knocked down Double Arrow (W1-7) across from Six Mile Rd.
- At mp 1.8 - 2.1 (right) - add delineators spaced about 100 feet apart.

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

- At mp 0.1 (right), the HOLLY Blvd sign should be removed and a BEGIN HOLLY Blvd sign be placed on left (for Eastbound traffic) so that public can read before passing it.
- At mp 0.2 (right), the RICE ST sign should be replaced with a BEGIN RICE ST sign so that public can read before passing it.
- At mp 0.0 – 0.6 non-critical shoulder drop offs – reshape.
- At mp 1.0 (left), mailbox appears to be on 6"x 8" post. Recommend working with landowners to get crashworthy mailbox assembly.

- At mp 1.2+ (right), old broken off post – remove.
- At 1.4 install Type 2 Object Marker for both ends of culvert
- At mp 1.5 (right), approach low – add gravel
- At mp 1.5+ (right), utility pole within clear zone - install Type 2 Object Marker on pole.
- At 1.6 (left) (3rd Chevron from west end), reshape shoulder transition and inslope.
- At Six Mile Rd (Southeast corner), drop-off – needs maintenance.
- At mp 1.9, install Type 2 Object Marker for both ends of culvert
- At mp 2.05 – 2.1 (right), check Chevrons at night for correct orientation with road and retroreflectivity.
- At mp 2.2 install Type 2 Object Marker for both ends of culvert.
- Deer reflectors need to be maintained or removed.
- At mp 2.7 (both), tree trimming within clear zone.
- Curve Sign and 45 MPH Advisory Speed Plaque low - raise them.
- At mp 3.0 (right), WELCOME TO SIOUX FALLS sign should be moved west away from other signing.
- At mp 3.0 (right), remove NO PASSING ZONE sign- middle of zone.
- There were several mailboxes throughout the project, although none appeared to be extremely hazardous except as noted, most did not appear to be crashworthy (see SDDOT standard plate on mailboxes for specific information). It is recommended that the county work with the landowners to get crashworthy mailboxes and turnouts where appropriate.
- Many approaches are low where they meet the roadway. Raise low approaches.

The following items were identified as high cost improvements that should be considered as funds become available for a major rehabilitation or reconstruction of the roadway:

- At mp 1.8 – 2.1(right), shoulder drop-off – flatten the slope.
- At mp 1.9 (right) extend culvert to north by about eight feet.

County Road 142 from Dubuque St. to junction of State Route 11:

This roadway was classified for the purposes of the RSA as a Rural Major, Medium Speed. The roadway is a paved surface and the posted speed limit on the roadway was 50 mph. For the purposes of the audit the location information is referenced from the west end of the job (mp 0.0) increasing by miles heading east. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- At mp 3.3 (right), replace missing delineators and continue them to bridge.

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

- At mp 0.5 (Powerhouse Rd) (left), extend pipe under Powerhouse and flatten approaches.
- At mp 1.0+ (left), remove evergreen from ROW.
- At mp 1.5 (Six Mile Rd.) (Left),
 - Remove NO PASSING ZONE sign from back of STOP sign. Place NO PASSING ZONE sign north of STOP sign and further out as not to block view of STOP sign. DOT NOT PASS and PASS WITH CARE signs can be used as an alternate to the NO PASSING ZONE sign on the right side of road.
 - Extend pipe under Six-Mile Rd. and flatten approaches.
- At mp 2.6, three cable rail needs maintenance.
- At mp 2.7 (left), clean out under rail to allow water to drain of roadway.
- At mp 2.8 (left), trim trees.
- At mp 3.5, puddling on the roadway.
- There are several curb and gutter sections. Some the ends are marked by delineators, other are not. The marking of the curbs should be consistent, recommend using Type 2 Object Markers.
- Several field approaches should be graded to match roadway.
- Markings are worn out and should be replaced.
- There were several mailboxes throughout the project; although none appeared to be extremely hazardous (such as a old plow or concrete filled

drum) most did not appear to be crashworthy (see SDDOT standard plate on mailboxes for specific information). It is recommended that the county work with the landowners to get crashworthy mailboxes and turnouts where appropriate.

County Road 138, from section line 1 mile west of County Route 109 to the Minnesota State line:

This roadway was classified for the purposes of the RSA Rural Major – High Speed. The surface is paved and the posted speed limit on the roadway was 55 mph. For the purposes of the audit the location information is referenced from the west end of the job (mp 0.0) increasing by miles heading east. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- None identified

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

- At mp 0.75 (right), the Large Arrow (W1-7) should be moved out to about 16 feet from the edge of pavement.
- At mp 0.9, install Type 2 Object Marker for both ends of culvert.
- At mp 1.0 (left) replace white delineators with Type 2 Object Marker.
- At mp 1.4 (left), install Type 2 Object Marker for both ends of culvert.
- At mp 1.49 (right), fill in inslope.
- At mp 1.5 (right), rebuild rock approach with proper slope.
- At mp 2.6 (left), install Type 2 Object Marker for monitoring well.
- At mp 2.7 (left), reshape radius and extend pipe.
- At mp 3.4 (left), install Type 2 Object Marker for monitoring wells.
- At mp 3.7 (right), remove utility pole.
- At mp 3.7 (right), Remove NO PASSING Sign from back of STOP sign.
- At mp 5.15 (left), empty post - remove.
- At mp 5.5 (right), 3 cable guard rail loose on east side of structure.
- At mp 5.7 (right), add delineation around curve.

- At Mp 5.8 (left), replace MINNEHAHA COUNTY guide sign.
- There were several mailboxes throughout the project; although none appeared to be extremely hazardous (such as a old plow or concrete filled drum) most did not appear to be crashworthy (see SDDOT standard plate on mailboxes for specific information). It is recommended that the county work with the landowners to get crashworthy mailboxes and turnouts where appropriate.

The following items were identified as high cost improvements that should be considered as funds become available for a major rehabilitation or reconstruction of the roadway:

- Shoulder drop-off through out project with limited right-of-way – flatten slope.

County Road 146 (26th ST) from the junction of State Route 11 to junction of State Route 42:

This roadway was classified for the purposes of the RSA Rural Major – Medium Speed. The surface is paved and the posted speed limit on the roadway was 45 mph. For the purposes of the audit the location information is referenced from the west end of the job (mp 0.0) increasing by miles heading east. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- None identified

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

- The right shoulder had a drop off over much of the section – add gravel in needed areas.
- At mp 0.1 (west bound lane), reestablish rumble strip.
- At mp 0.2 (right), question need for guardrail.
- At mp 0.2 – 0.3 (left), guardrail maintenance needed.
- At mp 0.8 (right), remove W2-1 Intersection sign, not needed for this direction.

- At mp 1.5 (right), add delineation around outside of curve. Consider removing W1-6 Arrow.
- At 1.5 (right), Remove NO PASSING ZONE Sign from back of STOP sign.
 - There were several mailboxes throughout the project; although none appeared to be extremely hazardous (such as a old plow or concrete filled drum) most did not appear to be crashworthy (see SDDOT standard plate on mailboxes for specific information). It is recommended that the county work with the landowners to get crashworthy mailboxes and turnouts where appropriate.

The following items were identified as high cost improvements that should be considered as funds become available for a major rehabilitation or reconstruction of the roadway:

- Mp 0.075 (right), Low approach – raise.
- Low to moderate rutting – need overlay.

County Road 148, from junction with County Route 151 to city limits near Sertoma Ave:

This roadway was classified for the purposes of the RSA Rural Major – High Speed. The surface is paved and the posted speed limit on the roadway was 55 mph. For the purposes of the audit the location information is referenced from the west end of the job (mp 0.0) increasing by miles heading east. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- None identified

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

- At mp 0.1, install Type 2 Object Marker for both ends of culvert.
- At mp 1.1 (right) remove trees.
- At mp 2.0 (left), remove rocks

- At mp 2.3, install Type 2 Object Marker for both ends of culvert.
- At mp 3.0 (right), Speed Limit sign old – replace and move 300 feet east
- At mp 3.2, install Type 2 Object Marker for both ends of culvert.
- At mp 4.0 (left), Rural address sign is low – raise.
- At mp 4.1, install Type 2 Object Markers on each side of culverts.
- At mp 4.8, install Type 2 Object Marker for both ends of culvert.
- At mp 5.0, install Type 2 Object Marker for both ends of culvert.
- At mp 5.4 (right), remove LOW FLYING AIRCRAFT signs (Another is located east of this location).
- At mp 5.48, install Type 2 Object Marker for both ends of culvert.
- At mp 5.5 (right), remove rocks at approach.
- At mp 6.3 (right), blocks used for approach wall and lined ditch with stone (higher than flow line) – replace with standard approach.
- At mp 6.6, install Type 2 Object Marker for both ends of culvert.
- There were several mailboxes throughout the project; although none appeared to be extremely hazardous (such as a old plow or concrete filled drum) most did not appear to be crashworthy (see SDDOT standard plate on mailboxes for specific information). It is recommended that the county work with the landowners to get crashworthy mailboxes and turnouts where appropriate.
- Trim trees within right-of-way
- Many approaches are low where they meet the roadway. Raise low approaches.
- When using Rumble strips in advance of stop locations, be consistent on where they are placed in relation to signs.

The following items were identified as high cost improvements that should be considered as funds become available for a major rehabilitation or reconstruction of the roadway:

- At mp 2.1 (left), approach lined with rocks, real steep - flatten.
- At mp 2.3, extend culvert out of clear zone.
- At mp 3.2, extend culvert out of clear zone.

County Road 150/151, from 1.75 miles southwest of junction with County Route 148 to 0.5 miles north of Interstate 90:

This roadway was classified for the purposes of the RSA Rural Major – High Speed. The surface is paved and the posted speed limit on the roadway was 55

mph. For the purposes of the audit the location information is referenced from the southwest end of the job (mp 0.0) increasing by miles heading north. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- None identified

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

County Route 150

- Trees need to be trimmed.
- At mp 0.4 (right), Chevrons too far apart – tighten up spacing so two are always in headlights.
- At mp 0.4-0.5 (right), shoulder drop off's – add gravel

County Route 151

- At mp 3.4 (left), pot hole southbound lane – repair.
- At mp 3.5 (left), there two approaches that have vertical faces - reshape
- At mp 3.6 (right), non-crashworthy mailbox – work with landowner to replace.
- At mp 3.7 (left), wagon wheels in right-of-way – remove.
- At mp 5.2, trees - remove.
- At mp 5.8, trees - remove.
- At mp 7.1 (left), steel pole in right-of-way- remove.
- At mp 7.6 replace YIELD sign with STOP sign.
- At mp 7.7, three cable guard rail – maintenance needed.
- There were several mailboxes throughout the project; although none appeared to be extremely hazardous except as noted, most did not appear to be crashworthy (see SDDOT standard plate on mailboxes for specific information). It is recommended that the county work with the landowners to get crashworthy mailboxes and turnouts where appropriate.
- Flatten approach slopes throughout route.

- Many approaches are low where they meet the roadway. Raise low approaches.
- There are several areas where there are shoulder drop off's north of SD42 – consider wider edge lines.
- Take Route Makers off destination signs and put on stand-alone post.

The following items were identified as high cost improvements that should be considered as funds become available for a major rehabilitation or reconstruction of the roadway:

County Route 150

- Steep slopes – flatten
- Mp 0.4, this intersection should be reconstructed to provide a single point of intersection on the outside of the curve.

County Route 151

- At mp 7.6 (right), low approach – raise.